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Designing Information Systems for General Administration Management in Playgroups in North Cimahi District

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Abstract. The process of implementing early childhood education at the playgroup level in its management includes program planning, organizing, implementing work plans, and monitoring. This research will discuss about management at the level of the playgroup which concerns general administration management. Where this general administration management contains important documents regarding the implementation of playgroups which are still being done manually on physical documents that may be damaged, so that important data in these documents experiences the same thing. Therefore, an information system design is needed to overcome these problems. This design uses the prototype method as a method of developing information systems. The results of this design will be used by programmers as material for making information systems.

1. Introduction

The emergence of schools aimed at early childhood requires good and appropriate management in accordance with the national standards for early childhood education regulated by the Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 137 of 2014 [1]. Of the eight standards of early childhood education, management standards and standards of educators and education workforce need to be considered in order for school administration and management to be implemented [1,2]. Administrative management in early childhood education can be managed by educators and education staff. Educators are tasked with managing administration related to teaching and learning activities and education center consisting of the head and administration staff for early childhood education [1]. In this research, the administration of early childhood education institutions that will be studied is a Playgroup aimed at early childhood aged 3-4 years in Cimahi City, Cimahi Utara District, totaling 25 [3,4]. Playgroups are describes in the

international literature, including the United States of America, United Kingdom and New Zealand, as a context in which a group of parents or carers and young children meet regularly to engange in play and socialization [5].

In administrative management, the playgroup is divided into three types, namely general administration, financial administration, and activity administration [3]. This research focus will be discussed regarding general administration management based on the Technical Guidelines for Organizing Playing Groups (2011), which consists of documents regarding prospective student books, student registration forms, master book formats, student attendance books, and others that are managed by the head and administrative staff of early childhood education [3]. However, the results of observations in several Playgroups of documents in general administration management were created and managed manually which were written in special books, so that a lot of data was easily damaged. From the results of the above observations, ECE (Early Childhood Education) heads and administrative staff need to have managerial competence [1, 6, 7].

In this modern era, information and communication technology has an impact on the education sector, especially in the field of administration. Many schools have used information and communication technology in managing administration. Therefore, information and communication technology can be used by the head and administrative staff of early childhood education as a role, responsibility, and function [8]. It is known that information is very important for management in making decisions. This information can be obtained from the information system.Information System (IS) involve a variety on information technology (IT) such as computers, software, databases, communication system, the internet, mobile devices and much more, to perform specific task, interact with and inform various actors in different organizational or social contexts [9]. Implementation of information system can support organization to achieve its goals [10]. There has been previous research on information system design which says that information system design can provide convenience to teachers at the early childhood education level [11, 12], but both studies did not design on how to manage general administration. This study only discusses the design of information systems regarding learning activities carried out in kindergarten, not in playgroups. Therefore, based on what has been described, we made a general administration management information system design in the urban village of Cimahi that uses UML diagrams in the form of use case diagrams and the development method uses the prototype method.

2. Method

In this study, we used object-oriented analysis design (OOAD) method and system design aids using UML diagrams [13, 14]. This method was done by finding problems based on the object being studied, beside this method was very effective for developing complex system. Software development is highly complex & interesting field with so many variables having lots of impact on system [15]. In software development (SD), they are many stages of events and activities take place typically; some of them are interactive in nature [16]. In designing the information system development using the prototype method. This model is then continually improved until it is according to user needs [14]. The application of the system is important for the information system developer in assessing the success of the information system whether it runs according to the plan and whether it has fulfilled the wishes of its users [17]. Prototyping requires more user involvement and allows them to see and interact with

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prototype allowing them to provide better and more complete feedback and specifications [18]. The developed prototype system shows the functional requirements of the system and can be used by stakeholders to monitor the production process and assist the decision-making process [19]. The prototype consists of several stages, but this research will focus on designing information systems. In the early stages, data collection will be carried out to be able to observe what the user needs, which carried out through interviews and literature studies. The advantage of using a prototype is that the designing could be done fastly. Where a developer and customer meet and define the overall object of the software, identify all needs, know which areas need to be known so that they can do a quick design. Design flash is intended to present aspects that demonstrate the construction of a prototype for the customer to then be evaluated to filter development requirements.

3. Results and Discussion

For the initial stages in the design, it is necessary to know in advance the needs of the user, namely the head and administrative staff of the playgroup in the North Cimahi sub-district by conducting interviews and observations. The results obtained in interviews and observations are in the form of data and processes on the procedures and standards commonly used by playgroup institutions for later system analysis. The analysis of the system covers the feasibility and need analysis [20]. The next stage is to develop a prototype by looking at the results of the system analysis process in each process in general administration management in the playgroup, including student management, institutional data management, management of facilities and infrastructure, and general administration reports. There are two actors in the development of this information system design, namely, the administration as the party that manages the general administration as a whole and the principal as the party that validates and approves all reports regarding general administration management. The following Figure is a use case diagram that illustrates this in Figure 1.

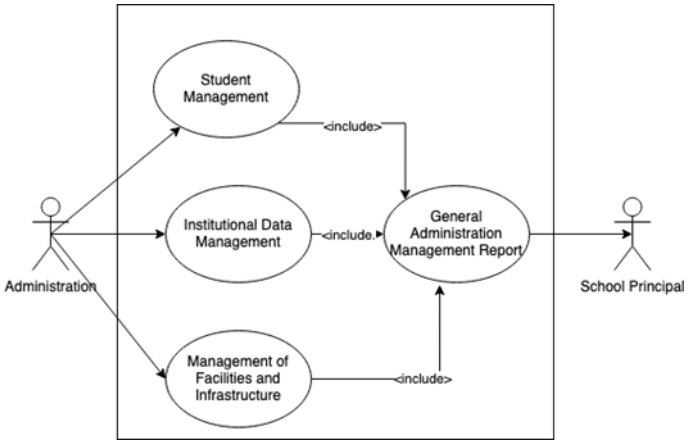

Figure 1. Use Case Diagram

The next stage is to design the system, by designing the interface as an important part of the process of designing an information system. This interface design plays a very important role in making web design, the interface is built to adjust to user needs [21]. Each part in the

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system that confused the users will be identified and improved by designing the interface to ease the users to keep them engaged with the system [22]. The interface design in this research is website based. Website history can be considered an emerging discipline at the intersection between media history and Internet history [23]. The following is a picture of the interface design for logging in. This login page is used by administrative staff and school principals to enter the system and is limited by access rights for each actor.

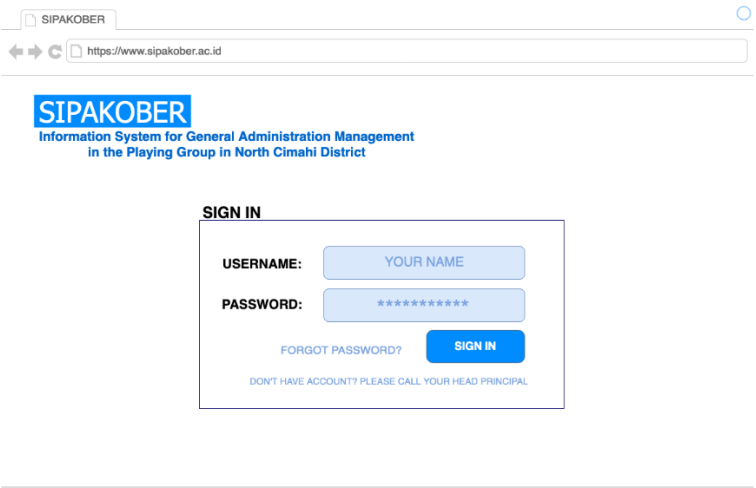

Figure 2. Login Interface

Figure 3 shows the main view for actor administration in the general administration management information system. This page contains notifications about which data has not been completed by the administrative staff which is adjusted to the level of data that is important to be worked on immediately so it is very important to be completed immediately.

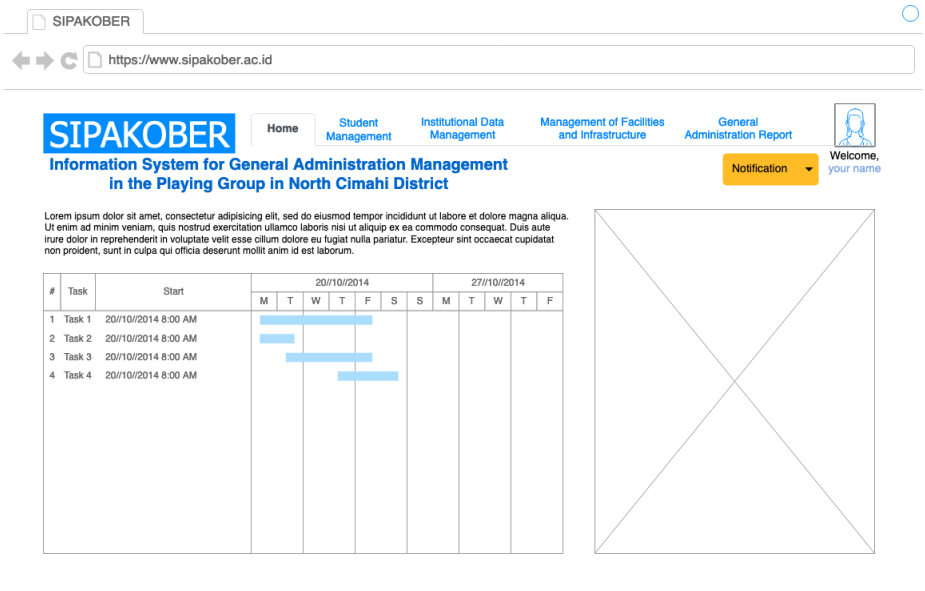

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Figure 3. Home Administration Interface

The process of general administration management is shown in Figure 4. Figure 4 is a view on the side of the principal who can see all the results of data processing in the form of reports for a certain period. The purpose of this report is to provide useful information for playgroup institutions in carrying out all activities related to general administration.

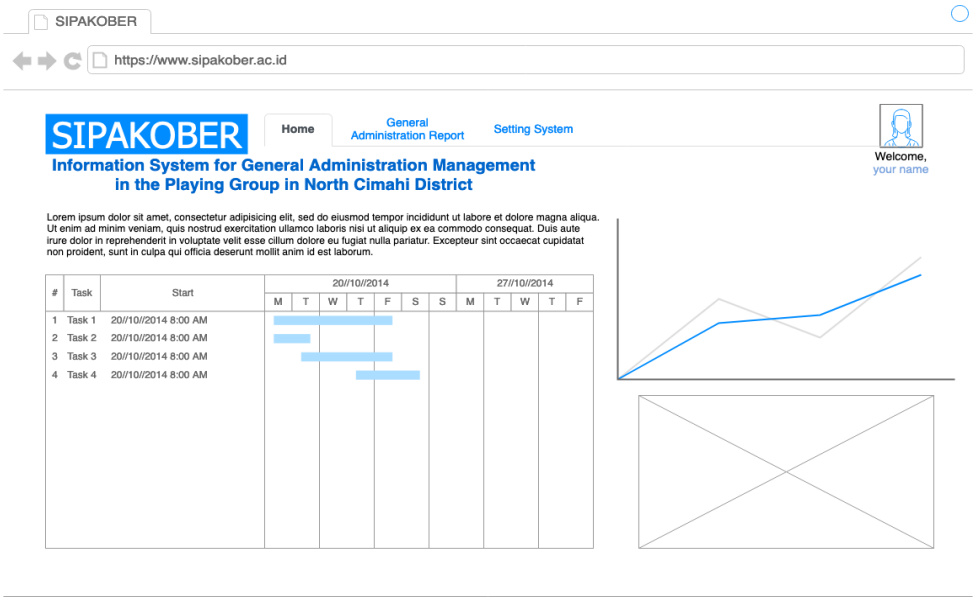

Figure 4. Home School Principal Interface

With the design of this information system, it is expected that it can assist related parties in carrying out their duties properly. This is because Information systems (IS) education is concerned with design and management of information systems [24]. Therefore, a training on the use of information systems is also needed so that its objectives can be fulfilled and Effective decisions are the result of effective and relevant and up to date information system of the organization [25].

4. Conclusion

The design of the general administration management information system in playgroups in the North Cimahi sub-district was produced using a prototype development method in the form of interface design. With the presence of this design, it can be used as material to create an information system required by administrative staff and school principals. This design can also help the playgroup in managing any data related to general administration and the information obtained can be used in accordance with the objectives to be achieved.

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